

## SHORT BIO

### 1. PERSONAL DATA

**António Heitor Reis – Full Professor with Tenure**

**Institution:** Department of Physics, School of Sciences and Technology (ECT), and Évora Geophysics Centre, Inst. of Research and Advanced Studies (IIFA), University of Évora, R. Romão Ramalho, 7000-671, Évora, Portugal.

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### 2. ACADEMIC DEGREES

- 2005, *Full Professor habilitation* - (Applied Physics), University of Évora.
- 1992, PhD (Physics), University of Évora.
- 1986, MSc. (Energy, Mechanical Engineering), IST, the Technical University of Lisbon.
- 1978, Graduation (Physics), Faculty of Sciences, University of Lisbon.

### 3. CURRENT SCIENTIFIC AND/OR PROFESSIONAL ACTIVITIES

- 2013 - present, Coordinator of the “Institute of Earth Sciences”
- 2010 - present, Director of the Évora Geophysics Centre (CGE), University of Évora, Portugal.
- 2009 - present, Director of the MSc.Course on Engineering of Solar Energy.
- 2009/10 - present, Member of the Steering Committees of Doctoral Programs on Mechatronics Engineering, and Physics.
- 2010 - present, Member of the Scientific Council of the University of Évora.
- 2010 - present, Member of the Scientific Council of the School of Sciences and Technology, University of Évora and of the Scientific Council of the Institute of Research and Advanced Studies, University of Évora.
- 2000 - 2015, Associate Professor, Department of Physics, University of Évora, Portugal.
- Member of the Editorial Boards of the Journals - *International Journal of Energy Research*, J. Wiley & Sons, UK.; *International Journal of Global Warming*, InderScience Publishers, Switzerland; *The Open Thermodynamics Journal*, Bentham Science Publishers, *International Journal of Dynamics of Fluids*, Research India Publications; *Conference Papers in Energy*, Hindawi Pubs.; *International Journal Adv. Research in Science, Engineering and Technology*, ijarset.org.; *The Open Conference Proceedings Journal*, Bentham Science Pub. U.S.A., *Physics International*, Science Pub., *Journal of Ergonomics*, Omics Int. Publ. (USA).

**4. PRESENT RESEARCH INTERESTS:** Energy and Exergy. Heat and fluid flows. Flow architectures Constructal Theory. Atmospheric physics, Atmospheric electricity. Econophysics.

### 5. HONORS/INVITED LECTURES/STATE-OF-THE-ART PRESENTATIONS

- Chairman of the *The 3rd International Energy, Exergy and Environment Symposium*, 1-5 July 2007, Évora, Portugal.
- Director of the NATO Advanced Research Workshop “*Constructal Human Dynamics Security and Sustainability*” Évora, 20-23 May, 2008.
- Chairman of the *Global Conference on Global Warming* (GCGW-2011) - 11-14 July 2011, Lisbon, Portugal.
- Member of the Organizing Committees of 19 International Conferences. Member of the Scientific Committees of 31 Int. Conferences.
- Invited talks in international Conferences: 14. Served as reviewer of 37 scientific journals.

**6. PROJECTS:** PI of 3 national projects, member of the team of several other projects.

### 7. MAIN ACADEMIC AND SCIENTIFIC RESPONSIBILITIES (UNIVERSITY BODIES AND NATIONAL BOARDS)

- 2006-2009, Vice-rector, for Science, Technology and International Cooperation at the University of Évora.
- 2006-2009, Delegate of the University of Évora to the Portuguese University Foundation.
- 2006-2009, Member of the committee of evaluation of applications to the BES Nacional Innovation Challenge.
- 2009, was responsible for establishing the Institute of Research and Advanced Studies (IIFA), University of Évora.
- 2008-2010, Chairman of the General Assembly of the Agency for the Regional Development of Alentejo (ADRAL).
- 2008-2009, Establishment of the “Science and Technology Network of Alentejo”(RCTA) and “Park of Science and Technology of Alentejo”.
- 2008, Chairman and organizer of the “1<sup>st</sup> Research Conference of the University of Évora” 13-14 May.
- 2001-2005, Chairman of the Scientific Council of the Departmental Area of Exact Sciences.
- 1999, Vice-Chairman of the Pedagogic Council of the University of Évora.
- 1997/98, Chairman of the Steering Committee for evaluation of teaching practitioners (University of Évora).
- 1993-1995, Head of the Physics Department (University of Évora).

**8. Publications:** Books (co-author): “*Porous and Complex Flow Structures in Modern Technologies*”, Springer, N. York (2004); *Along with Constructal Theory*, Ed. UNIL, Université de Lausanne (2007); Other Book Chapters - 14; Papers (ISI Web of Knowledge,) 57; Int. Conf. Proceed. - 68. Special Journal issues (guest editor) - 5; Books (editor) - 9

### 10. Most relevant publications in the last 3 years

- **A. Heitor Reis**, Use and Validity of Principles of Extremum of Entropy Production in the Study of Complex Systems, *Annals of Physics*, 346, 22-27 (2014).
  - C. Silva and **A. Heitor Reis**, Structure and Adaptation of Arteries to Pulsatile Flow – The Case of the Ascending Aorta, *Medical Physics*, 41, 6 (2014).
  - C. Silva, A. H. Reis, 2014, “Scaling relations of branching pulsatile flows”, *Int. J. of Thermal Sciences*, 88, pp 77–83.
  - H G Silva, R Conceição, M Melgão, K Nicoll, P B Mendes, M Tlemçani, A H Reis, R G Harrison, “Atmospheric electric field measurements in urban environment and the pollutant aerosol weekly dependence” *Environ. Res. Lett.* 9 114025, (2014).
  - H. G. Silva, M. Bezzeghoud1, M. M. Oliveira, **A. H. Reis**, R. N. Rosa, A simple statistical procedure for the analysis of radon anomalies associated with seismic activity, *Annals of Geophysics*, 56, 1, (2013), R0106; doi:10.4401/ag-5570.
  - M. Clausse; F. Meunier; **A.H. Reis**; A. Bejan , Climate Change, in the Framework of the Constructal Law, *Int. J. of Global Warming* Vol. 4 No. 3/4 (2012).
  - **A. Heitor Reis**, “Leaf Shapes and Venation Patterns”, Ch. 3 in *Constructal Law and the Unifying Principle of Design*, Springer, N. York.(2012).
- Most cited:**
- **A. Heitor Reis**, 2006, “Constructal Theory: From Engineering to Physics, and How Flow Systems Develop Shape and Structure”, *Applied Mechanics Reviews*, Vol.59, Issue 5, pp. 269-282,
  - **A. H. Reis**, A. F. Miguel and M. Aydin, 2004 “Constructal theory of flow architectures of the lungs”, *Medical Physics*, V. 31 (5) pp.1135-1140.
  - **A. H. Reis** and A. Bejan 2006, “Constructal theory of global circulation and climate”, *Int J. Heat and Mass Transfer*” Vol. 49, 1857-1875.
  - **A. Heitor Reis**, 2006 “Constructal view of scaling laws of river basins”, *Geomorphology*, Vol. 78, 201-206.
  - **A. Heitor Reis** and Cristina Gama, 2010 “Sand size versus beachface slope - an explanation based on the Constructal law, *Geomorphology*, 114, 276–283.
- Other:** - **A. Heitor Reis**, “Creation and development, from the individual researcher to research empires”, in *Two Decades of Earth Science Research*, Ed. CGE, 2012.
- **A. H. Reis** and A. F. Miguel, 2009, “The changing energy paradigm, challenges, and new developments”, *International Journal of Energy Research*, 33:111.
  - A. F. Miguel and **A. H. Reis**, 2008, “Recent Advances in Energy Research”, Editorial, *International Journal of Exergy*, 5, issue 5-6, 487-488.

